Date: March 26, 2012

Subject: Microbiology Data Validation (Dimock – Week 5)

From: Dave Russell, USEPA Region 3, Microbiology Certification Officer

---

Overview

The Week 5 sample batch consists of 9 samples analyzed by Northeastern Environmental Laboratories, Inc., Scranton, PA, for the following parameters:

Parameter	Analytical Method
Total Coliforms (TC)	SM 9222B
Fecal Coliforms (FC)	SM 9222B + SM 9221E
Heterotrophic Bacteria Count (HPC)	SM 9215C

Data quality was reviewed based on the criteria set forth in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, and the *USEPA Manual for the Certification of Laboratories Analyzing Drinking Water*, 5th Edition, *Chapter 5 – Critical Elements for Microbiology*. Data quality problems are listed below.

Summary

There are only a few data quality issues associated with Week 4 samples. Although cooler transport temperature was documented for all coolers, one cooler did not meet the acceptance criterion of <10°C. Consequently, the total coliform, fecal coliform and HPC results for two samples may be biased high. The 8-hour HPC holding time was exceeded for seven of the nine HPC samples, causing those results to be either biased high, low, or not affected at all. The seven-day incubation temperature for four HPC samples was 0.5°C above the maximum temperature allowed, possibly resulting in data biased high. Data qualifications are provided in Table 1 under Conclusions.

Data Quality Issues

1. TC/FC and HPC Transport Temperatures: For total coliforms, fecal coliforms, and HPC, the cooler transport temperature was in compliance with the <10°C requirement for 7 of the 9 samples. For the 2 samples out of compliance (highlighted in gray below), the temperature blank was 13.1°C. Any quantitative results (TC/FC or HPC) from the highlighted samples are therefore estimates and may be biased high.

FB19	FB21	HW56	HW61	HW61Z
FB20	HW50	HW60	HW61P	

DIM0273712

2. HPC Holding Times: The 8-hour holding time for HPC was exceeded for 7 of the 9 samples. Those samples exceeding the holding time are highlighted in gray below. Depending on other water quality factors an extended holding time may cause the number of bacteria present to increase, decrease, or remain unchanged. Results therefore are estimates and may be biased high, low, or not affected.

FB19	FB21	HW56	HW61	HW61Z
FB20	HW50	HW60	HW61P	

3. HPC Incubation Temperature: The acceptable incubation temperature range for the 7-day HPC method (SM9215C) is wide, 20-28°C. Four of the nine pairs of HPC plates were incubated at 28.5°C, 0.5°C above the maximum allowable temperature. The samples affected are identified in gray below. The deviation from the method is minor, but results should be considered estimates and may be biased high.`

FB19	FB21	HW56	HW61	HW61Z
FB20	HW50	HW60	HW61P	

Conclusions

Table 1. presents the final data qualifications for Week 5 samples where they apply. The number in parentheses corresponds to the data quality issue discussed above. (The numbers are not related to issues listed in other data validation reports.)

Table 1. Data Qualifiers -- Week 4

SAMPLE	QUALIFIERS for TC/FC DATA	QUALIFIERS for HPC DATA
FB19	K (1)	K (1)
FB20		J (2), K (3)
FB21		J (2)
HW50		J (2)
HW56		J (2)
HW60	K (1)	K (1)
HW61		J (2), K (3)
HW61P		J (2), K (3)
HW61Z		J (2), K (3)